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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/506,204

02/17/2000

Trung T. Doan

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6685

7590

12/01/2004

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EXAMINER

QUACH, TUAN N

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/506,204	Applicant(s) DOAN, TRUNG T.	
	Examiner Tuan Quach	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 45-89 is/are pending in the application.
- 4a) Of the above claim(s) 80-89 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-79 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 45-79 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-46 of U.S. Patent No. 6,124,205. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons: the claims draw to substantially the same or overlapping subject matter of depositing aluminum over a contact hole, applying pressure to the aluminum to fill the contact hole, and diffusing a different material into the aluminum to form aluminum alloy; compare e.g., claims 45, 62 with claims 1 and 23 of '205. The recitation in instant claim 45 regarding the first and second stress migration property and electromigration property and in claim 62 regarding the first and second melting point correspond to property inherent in the claims of the patent as the same processing regarding the same structure, e.g., contact hole and its

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filling, are being claimed; the corresponding layer of aluminum material in the patent are capable of possessing such characteristics given the similar processing, material, and structure are involved. The various limitations in dependent claims, e.g., physical vapor deposition in claim 46, irradiation with argon plasma in claims 47, 48, the high pressure chamber in claim 49, the temperature in claim 50, the pressure in claim 51, and similar limitations in claim 63-71 correspond to and are obvious over substantially same or similar limitations in claims 2-10, 20, of '205 wherein the similar deposition, irradiation, apparatus, temperature and pressure were claimed. The various differing materials claimed in, e.g., claims 53-61 and 72-79 correspond to and are obvious over similar materials previously claimed in '205, e.g., claims 11-19 in '205.

Claims 45-79 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,391,778. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons: the claims draw to substantially the same or overlapping subject matter of depositing aluminum over a contact hole, applying pressure to the aluminum to fill the contact hole, and diffusing a different material into the aluminum to form aluminum alloy; compare e.g., claims 45, 62 with claims 1 and 25 of '778. The recitation in instant claim 45 regarding the first and second stress migration property and electromigration property and the melting point in claim 62 correspond to property inherent in the claims of the patent as the same processing regarding the same structure, e.g., contact hole and its filling, are

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being claimed; the corresponding layer of aluminum material in the patent are capable of possessing such characteristics given the similar processing, material, and structure are involved. The various limitations in dependent claims, e.g., physical vapor deposition in claim 46, irradiation with argon plasma in claims 47, 48, the high pressure chamber in claim 49, the temperature in claim 50, the pressure in claim 51, and similar limitations in claim 63-71 correspond to and are obvious over substantially same or similar limitations in claims 5, 9, 10, 12, 13, 14, 15, 28-39 of '778 wherein the similar deposition, irradiation, apparatus, temperature and pressure were claimed. The various differing materials claimed in, e.g., claims 53-61 and 72-79 correspond to and are obvious over similar materials previously claimed in '778, e.g., claims 2-8, 17-24, 26-27, 39-46.

Claims 45-79 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,391,778. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons: the claims draw to substantially the same or overlapping subject matter of depositing aluminum over a contact hole, applying pressure to the aluminum to fill the contact hole, and diffusing a different material into the aluminum to form aluminum alloy; compare e.g., claims 45, 62 with claims 1 and 25 of '778 and wherein the instant claims, e.g., claim 45 and 62 are broadened as to encompass the limitations previously claimed. The recitation in instant claim 45 regarding the first and second stress migration property and electromigration property and in claim 62 regarding the first and second melting point correspond to property

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inherent in the claims of the patent as the same processing regarding the same structure, e.g., contact hole and its filling, are being claimed; the corresponding layer of aluminum material in the patent are capable of possessing such characteristics given the similar processing, material, and structure are involved. The various limitations in dependent claims, e.g., physical vapor deposition in claim 46, irradiation with argon plasma in claims 47, 48, the high pressure chamber in claim 49, the temperature in claim 50, the pressure in claim 51, and similar limitations in claim 63-71 correspond to and are obvious over substantially same or similar limitations in claims 5, 9, 10, 12, 13, 14, 15, 28-39 of '778 wherein the similar deposition, irradiation, apparatus, temperature and pressure were claimed. The various differing materials claimed in, e.g., claims 53-61 and 72-79 correspond to and are obvious over similar materials previously claimed in '778, e.g., claims 2-8, 17-24, 26-27, 39-46.

Claims 45-79 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No. 6,395,628. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons: the claims draw to substantially the same or overlapping subject matter of depositing aluminum over a contact hole, applying pressure to the aluminum to fill the contact hole, and diffusing a different material into the aluminum to form aluminum alloy; compare e.g., claims 45, 62 with claims 1 and 18 of '628 and wherein the instant claims, e.g., claim 45 and 62 are broadened as to encompass the limitations previously claimed. The recitation in instant claim 45 regarding the

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first and second stress migration property and electromigration property and in claim 62 regarding the first and second melting point correspond to property inherent in the claims of the patent as the same processing regarding the same structure, e.g., contact hole and its filling, are being claimed; the corresponding layer of aluminum material in the patent are capable of possessing such characteristics given the similar processing, material, and structure are involved. The various limitations in dependent claims, e.g., physical vapor deposition in claim 46, irradiation with argon plasma in claims 47, 48, the high pressure chamber in claim 49, the temperature in claim 50, the pressure in claim 51, and similar limitations in claim 63-71 correspond to and are obvious over substantially same or similar limitations in claims 2-7, 19-25 of '628 wherein the similar deposition, irradiation, apparatus, temperature and pressure were claimed. The various differing materials claimed in, e.g., claims 53-61 and 72-79 correspond to and are obvious over similar materials previously claimed in '628, e.g., claims 8-17 and 25-32.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kurino et al. is made of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number (571) 272-1717. The examiner can normally be reached on M - F from 8 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Wael Fahmy can be reached on (571) 272-1705. The fax

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phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

A handwritten signature in black ink, appearing to read 'TQuach' with a stylized flourish at the end.

**Tuan Quach**  
**Primary Examiner**